If!

a draft depression below the regenerators sufficient to remove the-products of combustion from the furnace; additional draft depression must be supplied to overcome any friction in the passages through which the waste gases pass. There are limits to the height of chimney which it is desirable to install in connection with an open-hearth furnace and any further increase in the draft depression must be secured by the installation of a draft fan. When these fans are operated by steam they will consume about one-fifth of the total steam generated and the balance will be available for the gas producers and for supplying the other power demands of the plant.

The primary function of the open-hearth furnace is the production of steel and this should be kept in mind in the design of the waste-heat boiler setting and flues. The boiler should be by-passed so that any failure in these portions of the equipment will not necessitate the shut-down of the furnace. In some cases steam-jet apparatus has been installed to provide against the failure of the fan or its motive power.

The venturi coned ejector form of chimney has been employed in some installations. This type of chimney may be used in either of two methods, the fan may be reduced in size and only handle a portion of the waste gases, or the Louis Prat method may be employed, in which the fan handles cold air only. This latter method is analogous to that of the hydraulic head increaser designed by Clemens Herschel for use with low head hydro-plants.

One of the incidental advantages of introducing induced draft-in the operation of the furnace arises from the fact that the fan draft may be increased to compensate for the

blocking up of the checkers and the operation of the furnace will be entirely independent of those barometric and weather conditions which affect chimney draft.

Reversing valves for regeneratively fired furnaces have been a source of much trouble. Many different valves have been designed and placed upon the market, and a number of different flue arrangements have been devised to eliminate the reversing valve and accomplish the reversal with a multiplicity of mushroom valves and dampers. The simple Siemens butterfly valve was the first four-way valve used on these furnaces. When in use, however, and exposed, on one side, to the hot gases and on the other,